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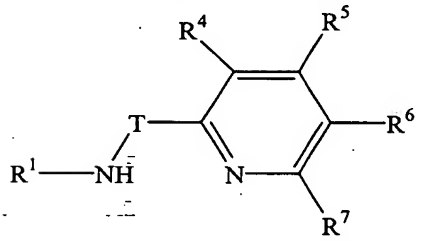
What is claimed is:

1. A process for the polymerization of monomers, said process employing a composition comprising:

(1) a ligand characterized by the following general formula:



wherein R^1 is selected from the group consisting of alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl and combinations thereof.

T is $-CR^2R^3-$ and R^2 are R^3 are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxyl, aryloxyl, silyl, boryl, phosphino, amino, thio, seleno, halide, nitro, and combinations thereof;

R^4, R^5, R^6 and R^7 are each independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxyl, aryloxyl, silyl, boryl, phosphino, amino, thio, seleno, halide, nitro, and combinations thereof; and optionally, any combination of R^1, R^2, R^3, R^4, R^5, or R^6 may be joined together in a ring structure;

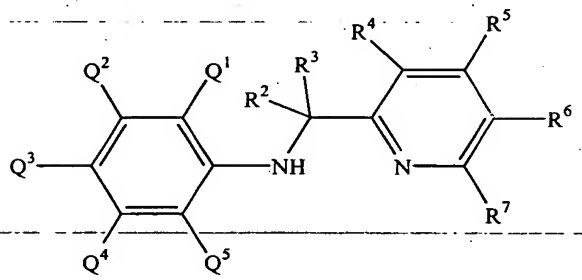
provided that either R^3 or R^7 is selected only from the group consisting of aryl, substituted aryl, heteroaryl and substituted heteroaryl;

(2) a metal precursor compound characterized by the general formula $Hf(L)_n$ wherein each L is independently selected from the group consisting of halide, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl heterocycloalkyl, substituted heterocycloalkyl, aryl, substituted aryl,

heteroaryl, substituted heteroaryl, alkoxy, aryloxy, hydroxy, boryl, silyl, amino, amine, hydrido, allyl, diene, seleno, phosphino, phosphine, carboxylates, thio, 1,3-dionates, oxalates, carbonates, nitrates, sulphates, ethers, thioethers and combinations thereof or optionally two or more L groups are joined into a ring structure; n is 1, 2, 3, 4, 5, or 6; and

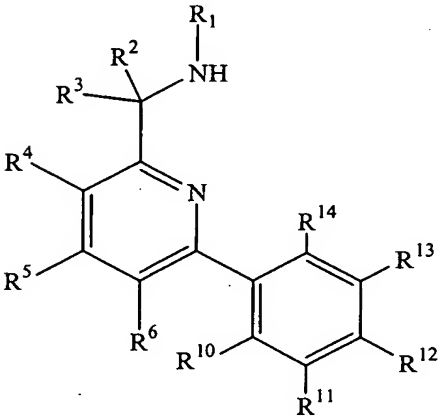
(3) optionally, at least one activator.

2. The process of claim 1, wherein said ligand is characterized by the general formula:



such that E is carbon and wherein Q^1, Q^2, Q^3, Q^4 and Q^5 are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxyl, aryloxyl, silyl, boryl, phosphino, amino, thio, seleno, nitro, and combinations thereof; optionally two of Q^2, Q^3 and Q^4 are joined together in a ring structure.

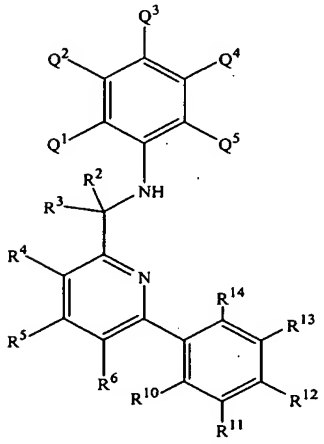
3. The process of claim 1, wherein said ligand is characterized by the general formula:



wherein R^{10}, R^{11}, R^{12} and R^{13} are each independently selected from the group consisting of hydrogen, halide, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxy, aryloxy, silyl, boryl, phosphino, amino, thio, seleno, nitro, and combinations thereof; optionally, two or more R^{10}, R^{11}, R^{12} and R^{13} groups may be joined to form a fused ring system having from 3-50 non-hydrogen atoms; and

R^{14} is selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxy, aryloxy, silyl, boryl, phosphino, amino, thio, seleno, halide, nitro, and combinations thereof.

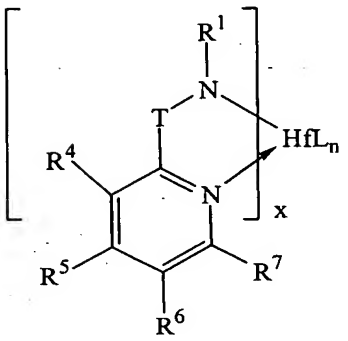
4. The process of claim 3, wherein said ligand is characterized by the formula:



wherein Q^1, Q^2, Q^3, Q^4 and Q^5 are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxyl, aryloxyl, silyl, boryl, phosphino, amino, thio, seleno, nitro, and combinations thereof; optionally two of Q^2, Q^3 and Q^4 are joined together in a ring structure.

5. A process for the polymerization of monomers, said process employing

a metal-ligand complex characterized by the following formula:



wherein R^1 is selected from the group consisting of alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl and combinations thereof.

T is $-CR^2R^3-$ and R^2 are R^3 are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxyl, aryloxyl, silyl, boryl, phosphino, amino, thio, seleno, halide, nitro, and combinations thereof;

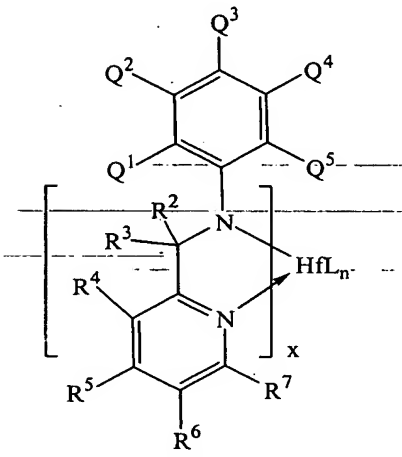
R^4, R^5, R^6 and R^7 are each independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxyl, aryloxyl, silyl, boryl, phosphino, amino, thio, seleno, halide, nitro, and combinations thereof; and optionally, any combination of R^1, R^2, R^3, R^4, R^5, or R^6 may be joined together in a ring structure;

provided that either R^3 or R^7 is selected only from the group consisting of aryl, substituted aryl, heteroaryl and substituted heteroaryl;

each L is independently selected from the group consisting of halide, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl heterocycloalkyl, substituted heterocycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxy, aryloxy, hydroxy, boryl, silyl, amino, amine, hydrido, allyl, diene, seleno, phosphino, phosphine, carboxylates, thio, 1,3-dionates, oxalates, carbonates, nitrates, sulphates, ethers, thioethers and combinations thereof or optionally two or more L groups are joined into a ring

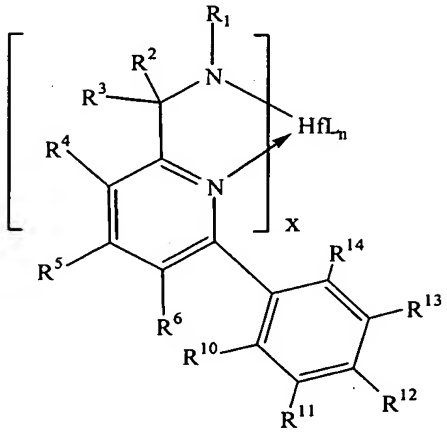
structure; n is 1, 2, 3, 4, 5, or 6; and x is 1 or 2.

6. The process of claim 5, wherein said metal complex is characterized by the formula:



wherein Q^1, Q^2, Q^3, Q^4 and Q^5 are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxyl, aryloxyl, silyl, boryl, phosphino, amino, thio, seleno, nitro, and combinations thereof; optionally two of Q^2, Q^3 and Q^4 are joined together in a ring structure; and x = 1.

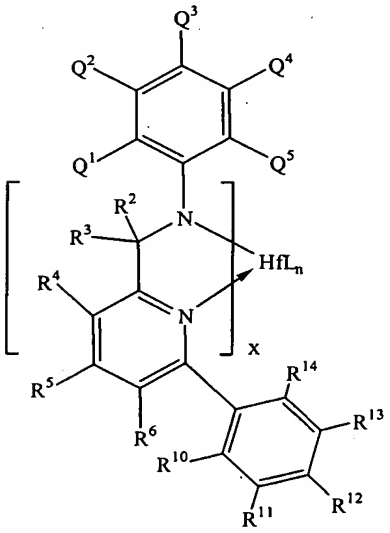
7. The process of claim 5, wherein said complex is characterized by the formula:



wherein R^{10}, R^{11}, R^{12} and R^{13} are each independently selected from the group consisting of hydrogen, halide, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxy, aryloxy, silyl, boryl, phosphino, amino, thio, seleno, nitro, and combinations thereof; optionally, two or more R^{10}, R^{11}, R^{12} and R^{13} groups may be joined to form a fused ring system having from 3-50 non-hydrogen atoms; and

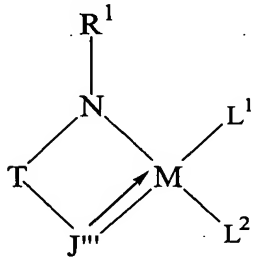
R^{14} is selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxy, aryloxy, silyl, boryl, phosphino, amino, thio, seleno, halide, nitro, and combinations thereof; and x = 1.

8. The process of claim 7, wherein said complex is characterized by the general formula:



wherein Q^1, Q^2, Q^3, Q^4 and Q^5 are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxyl, aryloxyl, silyl, boryl, phosphino, amino, thio, seleno, nitro, and combinations thereof; optionally two of Q^2, Q^3 and Q^4 are joined together in a ring structure.

9. A process for the polymerization of monomers, said process employing a metal complex characterized by the formula:



where M is zirconium or hafnium;

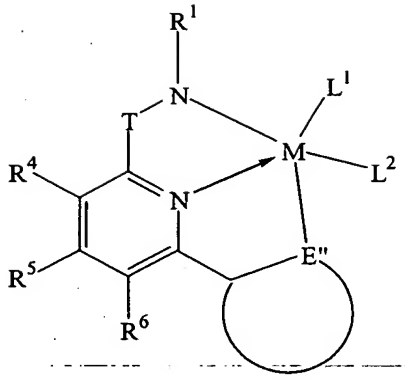
wherein R^1 is selected from the group consisting of alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl and combinations thereof.

T is a bridging group selected group consisting of $-CR^2R^3-$ and $-SiR^2R^3-$ with R^2 and R^3 being independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxyl, aryloxyl, silyl, boryl, phosphino, amino, thio, seleno, halide, nitro, and combinations thereof;

J''' being selected from the group of substituted heteroaryls with 2 atoms bonded to the metal M, at least one of those 2 atoms being a heteroatom, and with one atom of J''' is bonded to M via a dative bond, the other through a covalent bond; and

L^1 and L^2 are independently selected from the group consisting of halide, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted heterocycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxy, aryloxy, hydroxy, boryl, silyl, amino, amine, hydrido, allyl, diene, seleno, phosphino, phosphine, carboxylates, thio, 1,3-dionates, oxalates, carbonates, nitrates, sulphates, ethers, thioethers and combinations thereof or optionally two or more L groups are joined into a ring structure.

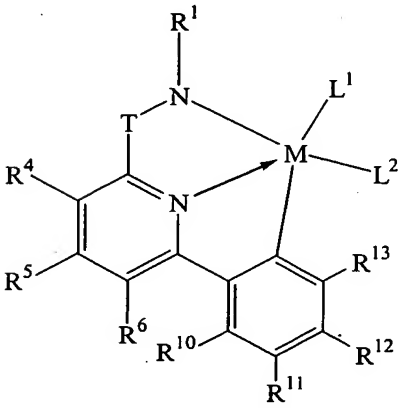
10. The process of claim 9, wherein said complex is characterized by the formula:



wherein each of R^4, R^5 and R^6 is independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxyl, aryloxyl, silyl, boryl, phosphino, amino, thio, seleno, halide, nitro, and combinations thereof; and optionally, any combination of R^1, R^2, R^3, R^4, R^5, or R^6 may be joined together in a ring structure; and

E" is either carbon or nitrogen and is part of a cyclic aryl, substituted aryl, heteroaryl, or substituted heteroaryl group.

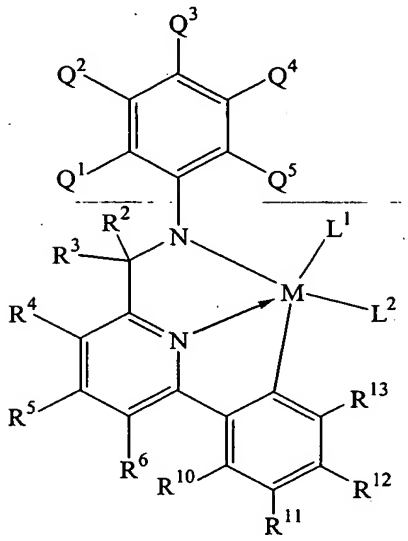
11. The process of claim 10, wherein said complex is characterized by the formula:



wherein R^{10}, R^{11}, R^{12} and R^{13} are each independently selected from the group consisting of hydrogen, halide, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxy,

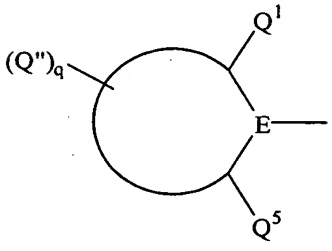
aryloxy, silyl, boryl, phosphino, amino, thio, seleno, nitro, and combinations thereof; optionally, two or more R^{10}, R^{11}, R^{12} and R^{13} groups may be joined to form a fused ring system having from 3-50 non-hydrogen atoms.

12. The process of claim 11, wherein said complex is characterized by the formula:



wherein Q^1, Q^2, Q^3, Q^4 and Q^5 are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxyl, aryloxyl, silyl, boryl, phosphino, amino, thio, seleno, nitro, and combinations thereof; or optionally, two of Q^2, Q^3 and Q^4 are joined together in a ring structure.

13. The process of either of claims 1, 3, 5, 7, 9, 10 or 11, wherein R^1 is characterized by the general formula:



wherein E is either carbon or nitrogen,

Q^1 and Q^5 are substituents on the R^1 ring at a position ortho to E, with Q^1 and Q^5 being independently selected from the group consisting of alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, aryl, substituted aryl and silyl, but provided that Q^1 and Q^5 are not both methyl; and

Q''_q represents additional possible substituents on the ring, with q being 1, 2, 3, 4 or 5 and Q" being selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, ~~heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl,~~ substituted heteroaryl, alkoxyl, aryloxyl, silyl, boryl, phosphino, amino, thio, seleno, halide, nitro, and combinations thereof.

14. The process of either of claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 or 12, wherein said process employs at least one activator.

15. The process of claim 14 wherein said at least one activator comprises an ion forming activator and another reagent selected from the group consisting of a group 13 reagent, a divalent reagent and an alkali metal reagent.

16. The process of either of claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 or 12, wherein said process employs at least one monomer that is an olefin, diolefin or unsaturated compound.

17. The process of claim 16, wherein there are at least 2 monomers.

18. The process of claim 17, wherein said at least 2 monomers comprise ethylene and an α-olefin.

19. The process of claim 17, wherein said at least 2 monomers comprise ethylene and either 1-octene or 1-hexene.

20. The process of claim 17, wherein there are at least 3 monomers in the process, with said monomers comprising ethylene, an α-olefin and a diolefin.

21. The process of claim 17, wherein said two monomers comprise ethylene and 1-octene.

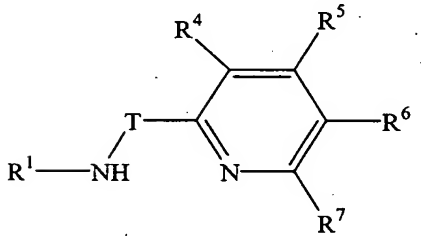
22. The process of claim 21, wherein R^3 is either aryl or substituted aryl.

23. The process of claim 21, wherein R^1 is selected from the group consisting of mesityl; 2-Me-naphthyl; 2,6-$(Pr^i)_2$-C_6H_3-; 2-Pr^i-6-Me-C_6H_3-; 2,6-Et_2-C_6H_3-; and 2-sec-butyl-6-Et-C_6H_3-.

24. The process of claim 21, wherein, when present, R^7 is selected from the group consisting of phenyl, napthyl, mesityl, anthracenyl and phenanthrenyl.

25. A catalyst for the production of a polymer comprising a composition comprising:

(1) a ligand characterized by the following general formula:



wherein R^1 is selected from the group consisting of alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl and combinations thereof.

T is $-CR^2R^3-$ and R^2 are R^3 are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxyl, aryloxyl, silyl, boryl, phosphino, amino, thio, seleno, halide, nitro, and combinations thereof;

R^4, R^5, R^6 and R^7 are each independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl,

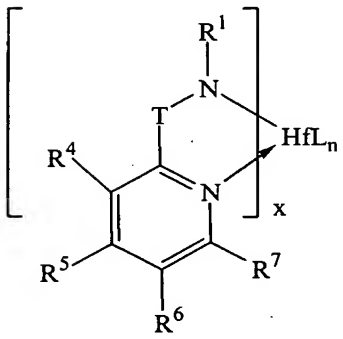
substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxyl, aryloxyl, silyl, boryl, phosphino, amino, thio, seleno, halide, nitro, and combinations thereof; and optionally, any combination of R^1, R^2, R^3, R^4, R^5, or R^6 may be joined together in a ring structure;

provided that either R^3 or R^7 is selected only from the group consisting of aryl, substituted aryl, heteroaryl and substituted heteroaryl;

(2) a metal precursor compound characterized by the general formula $Hf(L)_n$ wherein each L is independently selected from the group consisting of halide, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl heterocycloalkyl, substituted heterocycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxy, aryloxy, hydroxy, boryl, silyl, amino, amine, hydrido, allyl, diene, seleno, phosphino, phosphine, carboxylates, thio, 1,3-dionates, oxalates, carbonates, nitrates, sulphates, ethers, thioethers and combinations thereof or optionally two or more L groups are joined into a ring structure; n is 1, 2, 3, 4, 5, or 6; and

(3) optionally, at least one activator.

26. A catalyst for the production of a polymer comprising at least one activator and a metal-ligand complex characterized by the following formula:



wherein R^1 is selected from the group consisting of alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl and combinations thereof.

T is $-CR^2R^3-$ and R^2 are R^3 are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl,

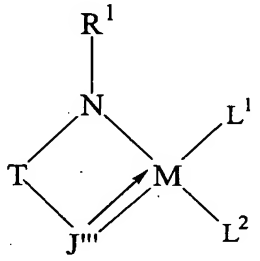
heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxyl, aryloxyl, silyl, boryl, phosphino, amino, thio, seleno, halide, nitro, and combinations thereof;

R^4, R^5, R^6 and R^7 are each independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxyl, aryloxyl, silyl, boryl, phosphino, amino, thio, seleno, halide, nitro, and combinations thereof; and optionally, any combination of R^1, R^2, R^3, R^4, R^5, or R^6 may be joined together in a ring structure;

provided that either R^3 or R^7 is selected only from the group consisting of aryl, substituted aryl, heteroaryl and substituted heteroaryl;

each L is independently selected from the group consisting of halide, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl heterocycloalkyl, substituted heterocycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxy, aryloxy, hydroxy, boryl, silyl, amino, amine, hydrido, allyl, diene, seleno, phosphino, phosphine, carboxylates, thio, 1,3-dionates, oxalates, carbonates, nitrates, sulphates, ethers, thioethers and combinations thereof or optionally two or more L groups are joined into a ring structure; n is 1, 2, 3, 4, 5, or 6; and x is 1 or 2.

27. A catalyst for the production of a polymer comprising at least one activator and a metal complex characterized by the formula:



where M is zirconium or hafnium;

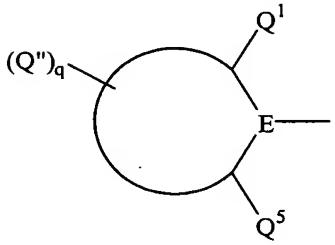
wherein R^1 is selected from the group consisting of alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl and combinations thereof.

T is a bridging group selected group consisting of $-CR^2R^3-$ and $-SiR^2R^3-$ with R^2 and R^3 being independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxyl, aryloxyl, silyl, boryl, phosphino, amino, thio, seleno, halide, nitro, and combinations thereof;

J'" being selected from the group of substituted heteroaryls with 2 atoms bonded to the metal M, at least one of those 2 atoms being a heteroatom, and with one atom of J'" is bonded to M via a dative bond, the other through a covalent bond; and

L^1 and L^2 are independently selected from the group consisting of halide, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl, heterocycloalkyl, substituted heterocycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxy, aryloxy, hydroxy, boryl, silyl, amino, amine, hydrido, allyl, diene, seleno, phosphino, phosphine, carboxylates, thio, 1,3-dionates, oxalates, carbonates, nitrates, sulphates, ethers, thioethers and combinations thereof or optionally two or more L groups are joined into a ring structure.

28. The catalyst of either of claims 25, 26 or 27, wherein R^1 is characterized by the general formula:



wherein E is either carbon or nitrogen,

Q^1 and Q^5 are substituents on the R^1 ring at a position ortho to E, with Q^1 and Q^5 are independently selected from the group consisting of alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, aryl, substituted aryl and silyl, but provided that Q^1 and Q^5 are not both methyl; and

$Q"_q$ represents additional possible substituents on the ring, with q being 1, 2, 3, 4 or 5 and Q" being selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, substituted heteroalkyl,

heterocycloalkyl, substituted hetercycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxyl, aryloxyl, silyl, boryl, phosphino, amino, thio, seleno, -halide, nitro, and combinations thereof.

29. The catalyst of either of claims 25, 26 or 27, wherein R^3 is selected from the group consisting of benzyl, phenyl, naphthyl, 2-biphenyl, 2-dimethylaminophenyl, 2-methoxyphenyl, anthracenyl, mesityl, 2-pyridyl, 3,5-dimethylphenyl, o-tolyl, and phenanthrenyl.

30. The catalyst of either of claim 28, wherein Q^1 and Q^5 are, independently, selected from the group consisting of $-CH_2R^{15}$, $-CHR^{16}R^{17}$ and methyl, provided that not both Q^1 and Q^5 are methyl, wherein R^{15} is selected from the group consisting of alkyl, substituted alkyl, aryl and substituted aryl; R^{16} and R^{17} are independently selected from the group consisting of alkyl, substituted alkyl, aryl and substituted aryl; and optionally R^{16} and R^{17} are joined together in a ring structure having from 3-50 non-hydrogen atoms.

31. The catalyst of claim 29, wherein Q^2, Q^3, and Q^4 are each hydrogen and Q^1 and Q^5 are both isopropyl; or both ethyl; or both sec-butyl; or Q^1 is methyl and Q^5 is isopropyl; or Q^1 is ethyl and Q^5 is sec-butyl.

32. The catalyst of claim 28, wherein R^1 is selected from the group consisting of mesityl; 2-Me-naphthyl; 2,6-$(Pr^i)_2$-C_6H_3-; 2-Pr^i-6-Me-C_6H_3-; 2,6-Et_2-C_6H_3-; and 2-sec-butyl-6-Et-C_6H_3-.

33. The catalyst of either of claims 25, 26 or 27, wherein R^7 is selected from the group consisting of phenyl, napthyl, mesityl, anthracenyl and phenanthrenyl.